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SB SAT @ AMSAT $ANS-239.01
STS-64 SAREX MISSION INFO

HR AMSAT NEWS SERVICE BULLETIN 239.01 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 27, 1994
TO ALL RADIO AMATEURS BT
BID: $ANS-239.01

STS-64 SAREX Update

The next Shuttle Amateur Radio Experiment (SAREX) mission is now less than two weeks away. The STS-64 Space Shuttle Discovery Mission, tentatively scheduled for launch on September 9, will carry SAREX voice and packet radio on a 9 day mission. More details on the upcoming SAREX flight are described in the detailed information sheet below.

STS-64 Shuttle Amateur Radio Experiment (SAREX)
Information Sheet

Mission:STS-64 Space Shuttle Discovery
Lidar In-Space Technology Experiment (LITE-1)
SPARTAN-201
Robot Operated Materials Processing System (ROMPS)

Launch:September 9, 1994, 20:30 UTC

Orbit:57 degree inclination

Mission Length:9 days (Nominal)

Amateur
Radio
Operators:Dick Richards, KB5SIW, Commander, Blaine Hammond, KC5HBS,
Pilot, and Jerry Linenger, KC5HBR, Mission Specialist

Modes:FM Voice
Prime callsign: KB5SIW

Packet Radio
Callsign: W5RRR-1

Frequencies:All operations in split mode. Do not transmit on
the downlink frequency.

Voice Freqs:Downlink:145.55 MHz (Worldwide)
Uplinks:144.91, 144.93, 144.95, 144.97, 144.99 MHz
(Except Europe)
144.70, 144.75, 144.80 MHz (Europe only)

Note: the crew will not favor any specific uplink
frequency, so your ability to work the crew will
be the "luck of the draw"

Packet Freqs:Downlink:145.55 MHz
Uplink:144.49 MHz

Info:Goddard Amateur Radio Club, WA3NAN, Greenbelt Maryland,

SAREX Bulletins and Shuttle Retransmissions
3860 KHz, 7185 KHz, 14,295 KHz, 21,395 KHz, 28,650 KHz
and 147.45 MHz (FM)

ARRL Amateur Radio Station, W1AW, Newington, CT
SAREX News Bulletins
3990, 7290, 14,290, 18,160, 21,390, and 28,590 KHz
and 147.555 MHz (FM)

:Also, bulletins available on internet, via AMSAT ANS,
Compuserve, and your local PBSS.

School Group Participation: 10 school groups will participate
in SAREX with pre-scheduled direct
and telebridge contacts. These include
nine in the U.S., and one in New Zealand.
Prelaunch Keplerian Elements:

These are the Keplerian elements for STS-64 mission, rotated to the
current planned launch time of Sep 9 at 20:30 UTC. The JSC-005 epoch
is at the start of orbit 5, after the trim burns on orbits 3 and 4. The
negative drag fit was required to match the design trajectory because there
is a 6.5 fps trim burn on orbit 28. The phasing and circ burns on orbit 99
lower the altitude by about 8 n.mi, so the second element set JSC-006 is
required after that. These Keps are provided by Gil Carman, WA5NOM
at the Johnson Space Center ARC.

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STS-64
1 00064U          94253.10077961 -.00030838  00000-0 -39665-4 0    59
2 00064  57.0058 195.1865 0009670 275.6619  84.3358 16.05979206    51

Satellite: STS-64
Catalog number: 00064
Epoch time:      94253.10077961   =    (10 SEP 94   02:25:07.36 UTC)
Element set:     005
Inclination:       57.0058 deg
RA of node:       195.1865 deg           Space Shuttle Flight STS-64
Eccentricity:     .0009670              Prelaunch Element set JSC-005
Arg of perigee:   275.6619 deg          Launch:  09 SEP 94  20:30 UTC
Mean anomaly:      84.3358 deg
Mean motion:   16.05979206 rev/day              G. L. Carman
Decay rate:    -3.0838e-04 rev/day^2      NASA Johnson Space Center
Epoch rev:               5
Checksum:              309

Note:  Element set JSC-005 is valid for orbits 2 through 98.
       Use JSC-006 after 15 Sep 94, 22:51:30 UTC (MET 6/03:49:30).

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STS-64
1 00064U          94259.01448182  .00096406  00000-0  94275-4 0    62
2 00064  57.0059 167.2656 0009343 269.2157  90.7841 16.11240267  1002

Satellite: STS-64
Catalog number: 00064
Epoch time:      94259.01448182   =    (16 SEP 94   00:20:51.23 UTC)
Element set:     006
Inclination:       57.0059 deg
RA of node:       167.2656 deg           Space Shuttle Flight STS-64
Eccentricity:     .0009343              Prelaunch Element set JSC-006
Arg of perigee:   269.2157 deg          Launch:  09 SEP 94  20:30 UTC
Mean anomaly:      90.7841 deg
Mean motion:   16.11240267 rev/day              G. L. Carman
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Decay rate:     9.6406e-04 rev/day^2      NASA Johnson Space Center
Epoch rev:              100
Checksum:               286

Note:  Element set JSC-006 is valid for orbits 99 through 142.
       Use JSC-005 before 15 Sep 94, 22:51:30 UTC (MET 6/03:49:30).

       The deorbit burn is on 18 Sep at 15:40 UTC (MET 8/20:38).
/EX
SB SAT @ AMSAT   $ANS-239.02
WEEKLY OSCAR STATUS REPORTS

HR AMSAT NEWS SERVICE BULLETIN 239.02 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 27, 1994
TO ALL RADIO AMATEURS BT
BID: $ANS-239.02

Weekly OSCAR Status Reports: 27-AUG-94

AO-13: Current Transponder Operating Schedule:
M QST *** AO-13 TRANSPONDER SCHEDULE ***  1994 Jul 11 - Sep 12
Mode-B  : MA   0 to MA  90 |  Omnis   : MA 230 to MA  30
Mode-BS : MA  90 to MA 120 |
Mode-S  : MA 120 to MA 122 |<- S beacon only
Mode-S  : MA 122 to MA 145 |<- S transponder; B trsp. is OFF
Mode-S  : MA 145 to MA 150 |<- S beacon only
Mode-BS : MA 150 to MA 180 |        Blon/Blat 180/0
Mode-B  : MA 180 to MA 256 | Move to attitude 230/0, Sep 12
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   N QST *** AO-13 TRANSPONDER SCHEDULE ***  1994 Sep 12 - Dec 19
   Mode-B  : MA  30 to MA 150 |<- OFF Oct 22 - Nov 07 for eclipses
   Mode-B  : MA 150 to MA 190 |       max duration 2h 12m
   Mode-BS : MA 190 to MA 218 |
   Mode-S  : MA 218 to MA 220 |<- S beacon only
   Mode-S  : MA 220 to MA 230 |<- S transponder; B trsp. is OFF
   Mode-B  : MA 230 to MA  30 |        Alon/Alat 230/0
   Omnis   : MA 250 to MA 140 |  Move to attitude 180/0, Dec 19
  The battery charge state is of paramount importance during the eclipse
  seasons.  As always the command team may have to have to make temporary
  changes to the published schedule.  In that case we will try to minimize
  the inconvenience, setting Mode-B OFF from MA 230-256 in the first
  instance.
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[G3RUH/DB2OS/VK5AGR]

RS-10: In last week's OSCAR Status Reports NO1R reported that he has made
some very spectacular contacts with his very modest Mode-A station
arrangement.  His station set-up includes a Kenwood TR-751A at 25 watts
into a AEA Isopole up about 35 ft.  His receiver is the Realistic HTX-100
into an inverted-vee up about 30 ft with an Advanced Receiver Research 10M
preamp.  This week NO1R reports that he has just received a QSL from Andy
Mironov at RS3A confirming my RS-10 Robot QSO in April.  Andy also writes:
"I will be glad to have any info abt your work via RS: your DX?  PSE send
by post or packet. 73 Andy" The packet address is for Andy is:
RK3KPK@RK3KP.RUS.EU  [NO1R]

AO-13: N7RYW would like to pass on a note about the Mode-S transponder.  He
has noticed that there is one station who continually sweeps the uplink,
looking for his downlink signal.  This is fine normally, N7RYW says, but as
this station starts to increase his power far in excess of what is needed
when he is unable to find himself.  The net effect of this is that other
stations can't hear themselves either because the AGC on the uplink receiver
has reduced its sensitivity to compensate for this strong signal.  This has the
effect of reducing the AGC affects EVERYONES, making it impossible to even hear
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their own signals! N7RYW has tried to respond to this station CW CQs when it finally does settle down (over 20 minutes one day!), but it does not respond to N7RYW's SSB call. N7RYW says he doesn't have a key, and doesn't want to install one just for just one single lid! All of the Mode-S users N7RYW has talked with are well aware of the power limits for uplinking with this one exception. N7RYW will not single out this person with their callsign, so he hopes a call to him in this way, with as much information as possible, without the call, will get his attention. This problem is ongoing, and serious. A station recently was attempting their first QSO on Mode-S a few days ago, and could not get it done due to this over-powered signal wiping out the trans-ponder. This is definitely NOT radar, which does not start sending CQ CQ CQ DE *****! While it won't help the excess power problem, this item may help people "find themselves." N7RYW has found that the Mode-S transponder's actual downlink appears to be 2400.735 MHz to 2400.765 MHZ, up 30 kHz from those published. N7RYW does not own a signal source with that high of frequency to verify this, but the UO-11 beacon passed zero Doppler within 1 kHz of the published frequency, so N7RYW would like to hear if anyone else has found those frequencies to be more accurate so he can verify and notify! [N7RYW@teleport.com]

KO-23: N7RYW reports that KO-23 is now back in operation after an OBC crash. The groundstation control elected to do a data dump to try to find the cause of the crash, so it took a few extra days to get the OBC reset. [N7RYW@teleport.com]

KO-25: KO-25 is back in service. Both KITSATs were down at various times for output power tests. These tests appear to be over for now. N7RYW has noticed that when either one is down due to a crash, a peculiar tone is emitted on the transmitter. If you are getting a good signal level, but no data, turn up the volume and listen for this tone. It may save you some head scratching later! Also, on the two KITSATs, the control station usually puts out a notice when one of the sats will not be in regular service. They are usually short notices, and originate from HL0ENJ, so it might be good to mark all messages from this station for automatic downloading in your select files. [N7RYW@teleport.com]

UO-11: The 2401.5 MHz beacon was been heard by N7RYW twice with an unmod-ulated carrier. On the first occassion he had the polarization set at LHCP, and it was just barely audible. Later he changed to RHCP and the signal was very strong. This polarity change was done on a 6' dish with a horn type feed with dual probes fed 90 degrees apart, much like a crossed dipole. [N7RYW@teleport.com]

AO-16: AO-16 is up and running well. [WH6I]

The AMSAT NEWS Service (ANS) is looking for volunteers to contribute weekly OSCAR status reports. If you have a favorite OSCAR which you work on a regular basis and would like to contribute to this bulletin, please send your observations to WD0HHU at his CompuServe address of 70524,2272, on INTERNET at wd0hhu@amsat.org, or to his local packet BBS in the Denver, CO area, WD0HHU @ N0QCU. Also, if you find that the current set of orbital elements are not generating the correct AOS/LOS times at your QTH, PLEASE INCLUDE THAT INFORMATION AS WELL. The information you provide will be of value to all OSCAR enthusiasts.

/EX